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ABSTRACT

Research was conducted to assess the applicability of the Instructional Systems Development (ISD) job analysis procedures to nine technical aviation maintenance military occupational specialties (MOS). Job analysis questionnaires were developed for each of the nine aviation maintenance MOS's. Research teams administered the questionnaires to groups of job incumbents and supervisors. Job incumbents rated their applicable tasks on a Relative Time Spent Performing scale. Supervisors rated all their MOS tasks on four scales: Task Learning Difficulty, Consequences of Inadequate Performance, Immediacy of Task Performance, and Type of Training. The data indicated that the ISD four-factor model of job analysis was applicable for identifying task training priority in the technical MOS's. The four factor scales correlated highly with the criterion scale (Type of Training) in all MOS's. A further analysis was conducted by splitting the tasks into those expected to be done mostly by incumbents and those inspection, supervision, and management tasks normally done by supervisors. The four factor scales correlated very highly with the criterion scale for the incumbent tasks and moderately highly for the supervisor tasks. Since the relative influence of the factor scales varied by MOS, however, the training priority policy of supervisors appears to be MOS specific, and the model will have to be adapted individually for each specialty. (Author)

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Technical Report 432

THE APPLICABILITY OF THE ISD 4-FACTOR MODEL OF JOB ANALYSIS IN IDENTIFYING TASK TRAINING PRIORITY IN NINE TECHNICAL MILITARY OCCUPATIONAL SPECIALTIES

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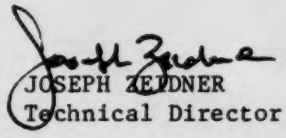
FOREWORD

The Training Technical Area of the Army Research Institute for the Behavioral and Social Sciences (ARI) has actively pursued a program of research in support of the systems engineering of training. A major focus of this research is to develop the fundamental data and technology necessary to field integrated systems for improving individual job performance.

This report is the second of several on job analysis procedures in the Instructional Systems Development (ISD) model of training. The goal of research on the job analysis block of the model is to assess the general applicability of ISD procedures for analyzing Army jobs. ARI Technical Paper 343 provided an initial look at the procedures and demonstrated that they were applicable to one semi-technical MOS. The present paper demonstrates that the procedures are applicable to nine aviation maintenance technical MOSs. Also, it presents some characteristics of the ISD job analysis model which were heretofore undocumented. The research was conducted in response to requirements from the US Military Personnel Center (MILPERCEN). MILPERCEN and the US Army Transportation School (USATSCH) were involved in the initial phases of the effort. Data collection occurred with the support of installations in CONUS, Germany, Alaska, Hawaii and Korea. The research was completed by ARI personnel under Army Project 2Q163731A770, FY 1979.



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THE APPLICABILITY OF THE ISD 4-FACTOR MODEL OF JOB ANALYSIS IN IDENTIFYING TASK TRAINING PRIORITY IN NINE TECHNICAL MILITARY OCCUPATIONAL SPECIALTIES

BRIEF

Requirement:

To assess the applicability of the Instructional Systems Development (ISD) 4-factor model of job analysis in identifying tasks for training priority in technical MOS.

Procedure:

Job analysis questionnaires were developed for each of nine aviation maintenance MOSs. The questionnaires consisted of several background items and a list of tasks performed in the pertinent MOS. MOS job incumbents rated their applicable tasks on a Relative Time Spent Performing scale. MOS supervisors rated all their MOS tasks on four scales: Task Learning Difficulty, Consequences of Inadequate Performance, Immediacy of Task Performance (Task Delay Tolerance), and Type of Training. Research teams administered the questionnaires to groups of job incumbents and supervisors at numerous CONUS and overseas installations.

Findings:

The data indicated that the ISD 4-factor model of job analysis was applicable for identifying task training priority in the technical MOSs. The four factor component scales (Relative Time Spent Performing, Task Learning Difficulty, Consequences of Inadequate Performance, and Immediacy of Task Performance) correlated highly with the criterion scale (Type of Training) in all MOSs. When just the non-supervisory tasks (performed by incumbents) in each MOS were considered, the correlations were even higher. The Task Learning Difficulty scale was the most strongly correlated scale with Type of Training. Since Type of Training can be considered a dimension indicating priority for formal training, the 4-factor component scales worked well in each MOS for indicating task training priority. However, since the relative influence of the scales varied by MOS, the equations determining priority appear MOS specific.

Utilization of Findings:

Personnel selecting tasks for training can use the ISD 4-factor model as an objective means to make an initial determination of priority. However, it appears the model will have to be adapted specifically for each MOS.

THE APPLICABILITY OF THE ISD 4-FACTOR MODEL OF JOB ANALYSIS IN IDENTIFYING TASK TRAINING PRIORITY IN NINE TECHNICAL MILITARY OCCUPATIONAL SPECIALTIES

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THE APPLICABILITY OF THE ISD 4-FACTOR MODEL OF JOB ANALYSIS IN IDENTIFYING TASK TRAINING PRIORITY IN NINE TECHNICAL MILITARY OCCUPATIONAL SPECIALTIES

INTRODUCTION

The purpose of this paper is to report on the applicability of the Instructional Systems Development (ISD) 4-factor model of job analysis in identifying task training priority in nine technical Army Military Occupational Specialties (MOS).[1] The model is designed to identify the "criticality" of tasks so that the most critical tasks can receive priority in training. The model also purports to indicate where training should take place, and when, and for whom.

Previous Army research found the model effective for establishing training priorities in a semi-technical MOS (76V Equipment Storage Specialist).[2] Similar success with the model has been experienced in occupational research on several US Air Force specialties.[3] This report presents results generated from the model on data collected on nine technical MOS in the aviation maintenance career field. The results will be informative to those in the Army who use or produce occupational data or who design occupational information systems such as the US Military Personnel Center (MILPERCEN), Training Developments Institute (TDI), and Army schools. In particular. the information in this report will enhance the ability of these organizations to use and understand data collected under the model and to identify where the model needs to be modified or expanded. A companion paper to this report presents a further look at the data on three of the nine MOS as well as an alternative analysis technique.[4]

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[1]The 4-factor model is described in TRADOC Pamphlet 350-30, Interservice Procedures for Instructional Systems Development, August, 1975 and TRADOC Pamphlet 351-4 (DRAFT), Job and Task Analysis Handbook, February 1979.

[2]Gilbert, A. C. F., Waldkoetter, R. O., Raney, J. L., and Hawkins, H. H. Efficacy of a Training Priorities Model in an Army Environment. (AD A066784); Technical Paper 343, US Army Research Institute for the Behavioral and Social Sciences, 5001 Eisenhower Avenue, Alexandria, VA 22333; October 1978.

[3]See for example, Mead, D. F. Determining Training Priorities for Job Tasks. Paper presented at the 17th Annual Conference for the Military Testing Association, Indianapolis, IN, 16-19 September 1975.

[4]Siebold, G. L. Discriminant Function Job Analysis in Three Army Technical MOS. Technical Paper, US Army Research Institute for the Behavioral and Social Sciences, 5001 Eisenhower Avenue, Alexandria, VA 22333, forthcoming.

PROCEDURE

The US Army Research Institute (ARI), US Military Personnel Center (MILPERCEN), and US Army Transportation School (USATSCH) mutually selected nine aviation maintenance MOS for the research because of the technical nature of these MOS and the need for current information on them. These MOS are listed in Table 1. Personnel at MILPERCEN and the school developed task lists for each of the MOS. Task list questionnaire booklets with directions and five rating scales were developed by ARI in cooperation with MILPERCEN. Optical scan answer forms were obtained for the questionnaire responses.

TABLE 1

Military Occupational Specialties (MOS)
On Which Data Were Collected

MOS 67G	U-8/U-21 Airplane Repairman
MOS 67U	CH-47 Helicopter Repairman
MOS 67X	CH-54 Helicopter Repairman
MOS 67Y	AH-IG Helicopter Repairman
MOS 68B	Aircraft Turbine Engine Repairman
MOS 68D	Aircraft Powertrain Repairman
MOS 68F	Aircraft Electrician
MOS 68G	Airframe Repairman
MOS 68H	Aircraft Hydraulics Repairman

Research teams collected the data in the field by group administration of the questionnaires at numerous Army installations in Continental United States (CONUS), Germany, Korea, Alaska and Hawaii. Roughly one-third of the total incumbents and supervisors in each of the nine MOS completed the questionnaires. The numbers of respondents are shown in Table 2. Job incumbents, who rated tasks on only one scale, usually finished their questionnaires within two hours. Supervisors, who rated tasks on four scales, finished their ratings in from three to eight hours depending on the length of their task list.

The questionnaire for each MOS consisted of 18 respondent background items and a task list. The length of the task list varied from 147 to 872 task items depending on the MOS involved. Respondents answered the

background information questions and then proceeded to rate the tasks on the pertinent scale or scales. Job incumbents rated tasks on the Relative Time Spent Performing scale. Supervisors rated tasks on the Task Learning Difficulty, Consequences of Inadequate Performance, Immediacy of Task Performance, and Type of Training scales in that order for every MOS. A copy of the questionnaire directions, including the scales, is provided in Appendix A. Directions were the same for each MOS. All five scales varied from a low of 1 to a high of 7.

RESULTS

Previous research efforts using the ISD 4-factor model typically collected data on only one MOS per project. The use of nine MOS permitted the comparison of results over the various MOS when the same procedures and questionnaire format were used.

In this particular research the data were only cleaned to a moderate degree. All responses were included in the analysis. Thus, respondents who rated tasks with strings of the same scale value were included. Similarly, supervisors who didn't rate all the task items in the list or who didn't complete all the rating scales were included.

The ratings on a task on a given scale were averaged to obtain an estimate of the true value of the scale rating for that task. Since the number of ratings per scale per task was typically large, the estimates of the true values were usually quite close. The scale means presented in Table 2 are simply averages of all the task item means for that scale. The correlations presented in the following tables are the correlations of the mean (true value estimate) for each task item on a given scale with corresponding task means on the other indicated scales. The basic results are shown in Tables 2 and 3.

The scale means in Table 2 indicate, for purposes of description, that nothing seems very unusual in the data. Although the Consequences of Inadequate Performance and Immediacy of Task Performance scales were given higher values and the Relative Time Spent Performing scale received somewhat lower ratings, the mean ratings per scale are essentially the same across the nine MOS. Some MOS mean values are consistently higher than the means of other MOS over the five scales. Since the scales were not benchmarked, it is not clear whether these MOS differences in mean values simply reflect the stringency with which supervisors rated the criticality of their MOS tasks or whether there are actual differences across MOS in overall task criticality.

Table 3 presents the most important information of this paper. The Relative Time Spent scale (rated by incumbents) and the three criticality scales (rated by supervisors) were regressed on the Type of Training scale (also rated by supervisors) to obtain the simple and multiple

Table 2

Basic Scale Response Data by MOS

	MOS								
	67G	67U	67X	67Y	68B	68D	68F	68G	68H
Number of Tasks on Task List	872	316	313	811	471	249	216	147	162
Number of Job Incumbent Raters	81	309	99	228	144	49	86	168	31
Number of Supervisor Raters	24	159	59	51	32	15	23	41	19
Relative Time Spent Performing: Mean	3.86	3.41	3.77	3.56	3.35	3.77	3.46	3.46	3.67
Standard Deviation	.81	.55	.50	.58	.66	.80	.61	.77	.92
Task Learning Difficulty: Mean	4.26	4.45	4.44	4.15	4.68	4.95	4.07	4.60	4.07
Standard Deviation	.70	.74	.70	.63	.85	.75	.76	.93	.76
Consequences of Inadequate Performance: Mean	4.94	4.92	5.03	5.07	4.88	5.53	4.12	4.69	4.69
Standard Deviation	.59	.74	.61	.66	.71	.72	.59	.89	.45
Immediacy of Task Performance: Mean	5.31	4.58	5.04	5.09	4.98	4.91	4.33	4.90	4.75
Standard Deviation	.50	.39	.44	.43	.30	.36	.29	.59	.29
Type of Training: Mean	4.78	4.26	4.53	4.43	4.39	4.69	4.04	4.25	4.35
Standard Deviation	.50	.45	.42	.52	.82	.55	1.06	.68	.62

Table 3

Basic Regression Results by MOS

	MOS								
	67G	67U	67X	67Y	68B	68D	68F	68G	68H
Multiple R: Predicting Type of Training By Other Four Scale Scores	.70	.89	.88	.82	.84	.77	.87	.84	.69
Multiple R^2	.49	.79	.78	.67	.71	.60	.76	.71	.48
Simple r: Correlation of Type of Training									
with Relative Time Spent Performing (1)	.21	.11	-.02	-.01	.00	.19	.20	-.43	.12
with Task Learning Difficulty (2)	.62	.87	.87	.73	.83	.70	.86	.81	.56
with Consequences of Inadequate Performance (3)	.51	.62	.67	.63	.69	.62	.53	.66	.58
with Immediacy of Task Performance (4)	.45	.59	.60	.61	.48	.26	-.01	.42	.25
Stepwise Regression Order of Scales	2134	2431	2314	2413	2341	2341	2134	2341	321

correlation coefficients for each MOS. The high multiple R values indicate that the scale ratings by the job incumbents and supervisors appear to reflect the underlying decision policy that supervisors used to rate the tasks on Type of Training. However, the decision policies appear to be MOS specific since the scale order in the stepwise regression equations is quite variable.

The most consistent influential scale in the "captured" policy is the Task Learning Difficulty scale. This scale is strongly correlated across all the nine MOS with the Type of Training scale, which reflects the training formality dimension. The Consequences of Inadequate Performance scale also is consistently strong across the MOS. The Immediacy of Task Performance scale is strongly correlated with Type of Training only for some MOS. This lack of consistency may be due to the fact that the average task rating on the scale was uniformly very high (see Table 2). The Relative Time Spent Performing scale is both minimally and inconsistently correlated with Type of Training. However, what little information Time Spent provided was not redundant with the information provided by the other scales. Hence, the scale is seldom in the last position in the stepwise regression order. One of the probable reasons for the inconsistency is that newer job incumbents spend a lot of time performing tasks which require less training. More detail on the equations and the interscale correlations are given in Appendix B.

The task lists on which these results were based included all tasks in the MOS. Therefore a further analysis was conducted by splitting the tasks into those expected to be done by incumbents and those inspection, supervision, and management tasks normally done by the NCO supervisors. Tables 4 and 5 present the results of that further analysis. One can see that the multiple R values were much higher for the incumbent tasks once they were separated from the supervisor tasks. The rating policy of the supervisors was captured much more successfully for these incumbent tasks. However, the contribution of the scales retained their relative influence with Task Learning Difficulty being the most important scale. Again the stepwise regression order was not consistent across the MOS. The 4-factor model worked adequately for the supervisor tasks.

DISCUSSION

Mead[5] optimistically expressed the hope that a single equation could be derived that captured the training priority decision policy of the supervisor raters. The results of this and previous research suggest that the search for such a formula may be futile. Apparently the mature attitude expressed in TRADOC Pamphlet 351-4--that job analysis is still very much an art--is reflective of current reality. Still, the results in this paper do present the possibility that useful MOS specific equations

[5] Mead, o. cit.

Table 4

Incumbent Tasks Regression Results

	MOS								
	67G	67U	67X	67Y	68B	68D	68F	68G	68H
Multiple R: Predicting Type of Training By Other Four Scale Scores	.76	.94	.93	.87	.89	.75	.92	.89	.81
Multiple R^2	.58	.88	.87	.77	.78	.56	.84	.79	.65
Simple r: Correlation of Type of Training with Relative Time Spent Performing (1)	-.08	.13	-.02	-.04	.16	.21	.36	-.22	.28
with Task Learning Difficulty (2)	.74	.92	.91	.85	.88	.72	.89	.87	.52
with Consequences of Inadequate Performance (3)	.58	.70	.73	.63	.71	.62	.53	.70	.75
with Immediacy of Task Performance (4)	.46	.73	.74	.56	.63	.22	-.10	.72	.27
Stepwise Regression Order of Scales	234	2413	2413	2413	2431	2341	2143	2143	3214

Table 5

Supervisor Tasks Regression Results

	MOS								
	67G	67U	67X	67Y	68B	68D	68F	68G	68H
Multiple R: Predicting Type of Training By Other Four Scale Scores	.71	.75	.74	.75	.79	.77	.80	.89	.71
Multiple R^2	.50	.56	.55	.56	.62	.59	.64	.79	.51
Simple r: Correlation of Type of Training									
with Relative Time Spent Performing (1)	.17	.03	-.11	-.35	.08	.09	.12	-.66	-.26
with Task Learning Difficulty (2)	.51	.70	.70	.35	.76	.69	.76	.73	.58
with Consequences of Inadequate Performance (3)	.64	.46	.52	.57	.44	.60	.57	.65	.50
with Immediacy of Task Performance (4)	.36	.36	.24	.64	.47	.29	.31	.09	.33
Stepwise Regression Order of Scales	3241	2134	2341	423	2143	234	2314	2134	2413

can be developed. Indeed it makes sense that criticality factors are differentially important in different MOS but that the same factors may hold true for a particular MOS. Repeated research over time on a set of MOS would clarify the issue.

The analysis used the Type of Training scale as a criterion on which the other scale values were regressed. The theory behind this procedure was that, by breaking down Type of Training ratings into its component scale parts, one could develop a set of parts more reliable when put together, than the original whole. The four scales or component parts regressed on Type of Training did seem to function well to predict Type of Training. The 4-factor model was successful in describing the underlying rating policy of the supervisors, as well as in determining the relative influence of the component scales. However, additional work is needed to investigate new scales, to eliminate or clarify some of the less influential present scales, and to develop a strong set of criteria.

The training priority decisions involved in this research were analyzed as if training priority meant priority for inclusion in school training. Characteristics of the tasks were used as the four policy component scales. Perhaps new dimensions (scales) could be developed that focus not so much on characteristics of the tasks themselves, but on the teaching or learning characteristics associated with the tasks. The fact that Task Learning Difficulty was so influential supports this idea. Thus, one would have two indices of school training priority: one based on the characteristics of the tasks (e.g., Consequences of Inadequate Performance), and one based on characteristics of teaching/learning the task (e.g., difficulty in learning the task).

The operational use of the 4-factor model might entail, for example, a school gathering a panel of say ten to twenty raters who would rate each task on the Task Learning Difficulty, Consequences of Inadequate Performance, and Immediacy of Task Performance scales. Using the mean scale ratings for each task and percent performing figures routinely obtained from US Army Military Personnel Center (MILPERCEN), school personnel would weight these figures by the Beta weights given in Appendix B and sum the values to arrive at a Type of Training score for each task. The scores would indicate which tasks should receive what type of training. This tentative training decision then would be modified by other pertinent training information to arrive at a final training plan to be submitted to the confirming authority.

This research report has not considered how well the 4-factor data could be used in the actual training priority selection process or their importance relative to other pertinent training information. The full task selection process needs to be evaluated to determine how well the 4-factor model really works.

SUMMARY

The purpose of this paper is to assess the applicability of the Instructional Systems Development (ISD) 4-factor model. The results of the research indicate that the model can be used to assign training priority to tasks with some degree of success, although further development of the model is desirable.

Several features of the model became apparent as a result of this research. First, the weight or influence of each of the factors was different for different MOS. Thus any equation describing an underlying rating policy is likely to be MOS specific.

Second, the Relative Time Spent Performing Scale is the least correlated scale with Type of Training. While the scale may be useful for determining when to train or whom to train, it seems inadequate for determining training priority. Third, although the Task Learning Difficulty, Consequences of Inadequate Performance, and Immediacy of Task Performance scales are all well correlated with Type of Training, the information from these three scales is often redundant. It might be desirable to develop two indices based on characteristics of the tasks themselves and on characteristics of teaching/learning each task to take advantage of redundancy and to provide stronger training priority measures.

Fourth, the model is particularly effective in identifying training priority for lower level enlisted tasks. Identifying priority for higher level inspection, management, and supervisory tasks appears to be a more complex process although the model did work adequately for these higher level tasks. Fifth, the model works well without the need for overly strict procedural controls or purified data. This fact suggests that the model can be incorporated into routine job analysis activities by Army personnel without a concern that there will be significant degradation of the data. In short, the model can be easily operationalized.

Finally, although the model has its shortcomings and could use further development, it seems to work for technical MOS. The resultant multiple R's were uniformly high across the nine MOS indicating that the model has satisfactorily captured the rating policy of subject matter experts in assigning training priority (Type of Training) for tasks. The model data can furnish an objective priority rating on each task for job analysts to use in selecting tasks for training and in other decisions they must make.

APPENDIX A

Questionnaire Directions (in part) and Rating Scales

Relative Time Spent Performing (Incumbents Only).

Beginning on the next page is a list of tasks performed by personnel in your duty Military Occupational Specialty (MOS). Tasks performed are grouped under Duty Categories for convenience. Carefully read each task statement in the entire list. No two task statements are exactly the same, although you may find some that seem to be very similar. Circle the task number to the left of the tasks that you perform in your current job. If you perform some tasks on your job that are not included in this inventory, you will have a chance to write them in at the end of the inventory. Do not circle a task number if you do not perform the task in your current job. Fill in the oval to the left of the task number for every task you have circled in your task inventory booklet. Do not mark the ovals to the right of the task numbers at this time.

When you have darkened the oval corresponding to all of the tasks you have circled, please read the following instructions before proceeding.

a. You are to rate the relative amount of time you spend performing each task you have circled. In making your rating of the relative amount of time spent on each task try to consider both how often you perform the task and the amount of time you spend performing the task.

b. Time Spent means the total time you spend on each task you are rating, compared with the time you spend on the other tasks you do. Remember, you are comparing only the tasks you have circled. USE THE FOLLOWING RATING SCALE.

1. Very Much Below Average
2. Below Average
3. Slightly Below Average
4. About Average
5. Slightly Above Average
6. Above Average
7. Very Much Above Average

c. In using this scale, first identify those tasks which require a great deal of your time. These would be rated as either a 6 or 7 in your answer booklet. Next identify those tasks which require little or none of your time. These would be rated either a 1 or a 2. Then identify tasks on which you spend an average amount of time. Rate these a 3, 4, or 5 as appropriate.

d. When making your ratings, try to use the entire range of the 7 point scale and be sure that each circled task is rated in the answer booklet in one of the seven ovals to the right of the task number.

General Directions for Supervisors.

Following the instructions for Part B in the Task Inventory Booklet is a list of tasks performed by personnel in your MOS. The tasks are grouped under major duty categories for your convenience. Each task is numbered and has a corresponding number in the answer booklet. In this part of the Task Inventory, you are asked to compare and rate the relative "Criticality" (importance) of each of the tasks based on your experience in supervising personnel who perform them. In general, critical tasks are tasks which, if not performed adequately, would seriously impair the overall objectives of the job.

You will be rating each of the tasks on four different rating scales using four separate answer booklets. The scales are Task Learning Difficulty, Consequences of Inadequate Performance, Immediacy of Task Performance and Type of Training. Except for the Type of Training scale, all scale ratings go from 1 "extremely low" to 7 "extremely high."

You are asked to rate all of the tasks for Learning Difficulty, then for Consequences, then Immediacy and finally Type of Training by recording your rating in the answer booklet appropriate for each scale.

BE SURE WHEN RATING THE TASKS ON A SCALE THAT YOU ARE USING THE APPROPRIATE ANSWER BOOKLET.

Task Learning Difficulty (Supervisors Only).

Decide the appropriate Task Learning Difficulty rating for the tasks in the inventory by using the following procedure.

a. You are to rate the relative difficulty in learning each of the tasks. In making your ratings try to consider both the time needed to learn to perform each task satisfactorily and whether, in comparison to the other tasks, it requires systematic training. In other words, the learning difficulty of a task may be thought of as the time involved in "picking up" the task on the job without systematic training. Each of the tasks is to be rated using the following scale.

1. Extremely Low Learning Difficulty - the task is extremely easy to "pick-up" without systematic training.

2. Low.

3. Somewhat Below Average.

4. Average.

5. Somewhat Above Average.

6. High.

7. Extremely High - the task is extremely difficult to learn without systematic training.

b. In using this scale, first identify those tasks which would require a great deal of on-the-job training (OJT) time before someone could perform then satisfactorily. These would be rated either a 6 or a 7 in your answer booklet. Next identify those tasks which could be easily and quickly learned without systematic training on the job. These would be rated either a 1 or a 2. Then identify tasks which would not require a great deal of OJT but could not be performed satisfactorily without some systematic training. Rate these a 3, 4, or 5 as appropriate.

Consequences of Inadequate Performance (Supervisors Only).

Decide the appropriate Consequences of Inadequate Performance rating for each task in the inventory by using the following procedure.

a. In making your rating estimate the probable seriousness of the consequences to your mission resulting from inadequate task performance. For some tasks, the consequences will be negligible. For others, inadequate performance may result in wasted supplies or manhours. For still other tasks, death or damage to important equipment may result. Rate each task using the following scale.

1. Extremely Low - if the task is performed inadequately, the consequences will be negligible.

2. Low.

3. Somewhat Below Average.

4. Average.

5. Somewhat Above Average.

6. High.

7. Extremely High - inadequate performance may result in heavy damage to important equipment, injury or death.

b. In using this scale, first identify those tasks where the probable consequences of inadequate performance would result in death, serious injury or major damage to important equipment. These tasks would be rated a 6 or a 7. Next identify those tasks where the probable consequences of inadequate performance are extremely low or nonexistent. These would be rated either a 1 or a 2. Finally, rate the remaining tasks in terms of wasted supplies, damage to equipment or manhour losses. Rate these tasks a 3, 4, or 5 as appropriate.

c. When making your ratings, try to use the entire range of the 7 point scale and be sure that you rate all of the tasks in one of the seven ovals to the right of the task number.

d. Always be sure that your answer booklet task number corresponds to the same task number in the task inventory booklet.

Immediacy of Task Performance (Supervisors Only).

Decide on the immediacy of task performance rating for each task in the inventory by using the following procedure.

a. In rating each task on the immediacy scale, try to estimate how quickly a task must be performed after the need for its performance becomes known. In other words, think of the delay that could be allowed from the time the soldier becomes aware that he must perform the task and the time he must actually start doing it. Each task is to be rated using the following scale.

1. Extremely Low Immediacy - task performance can be put off indefinitely: is almost never urgent.

2. Low.

3. Somewhat Below Average.

4. Average.

5. Somewhat Above Average.

6. High.

7. Extremely High - task performance must begin instantly.

b. In using this scale, first identify those tasks where no performance delay can be tolerated - the soldier must be capable of doing the task immediately without first getting advice or reading about it.

These tasks would be rated a 6 or a 7. Next identify those tasks where task performance can be put off indefinitely - performance is required but it is never urgent. These would be rated either a 1 or 2. Then identify tasks where other personnel, technical directives, regulations, etc. can be consulted before the task is performed. These would be rated a 3, 4, or 5 as appropriate.

Type of Training (Supervisors Only).

Consider which type of training is best for teaching each task in the booklet. Select one of the types of training listed below and fill in the corresponding oval in the answer booklet.

1. No training required.

2. Supervised OJT.

3. Nonresident School Training (Correspondence Course).

4. Formal Unit Training.

5. Installation Support School.

6. Residence School Training.

7. Contractor Training.

Now start rating the tasks for the type of training required. When you have finished this section, bring your booklets to the survey administrators. They will interview you in order to determine how the questionnaire and the administration procedures can be improved.

MOS67G - STEPWISE [illegible]SSION OF MEANS DEPENDENT VARIABLE.. FAC5 TYPE OF TRAINING

SUMMARY TABLE

VARIABLE		MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
FAC2	TASK LEARNING DIFFICULTY	.622	.386	.386	.622	.350	.488
FAC1	TIME SPENT PERFORMING	.664	.441	.055	.207	.133	.213
FAC3	CONSEQUENCES OF INADEQUATE PERFORMANCE	.699	.489	.048	.513	.179	.212
FAC4	IMMEDIACY OF PERFORMANCE	.702	.492	.004	.449	.082	081
(CONSTANT)						1.453	

MOS67G - PEARSON CORRELATION OF MEANS

	FAC1	FAC2	FAC3	FAC4	FAC5
FAC1	1.000				
FAC2	-.043	1.000			
FAC3	-.012	.522*	1.000		
FAC4	.218*	.397*	.605*	1.000	
FAC5	.207*	.622*	.513*	.449*	1.000 (99.000)

* Significance less than or equal to .001

MOS67U - STEPWISE REGRESSION OF MEANS DEPENDENT VARIABLE.. FAC5 TYPE OF TRAINING

SUMMARY TABLE

VARIABLE		MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
FAC2	TASK LEARNING DIFFICULTY	.871	.759	.759	.871	.477	.786
FAC4	IMMEDIACY OF PERFORMANCE	.885	.783	.024	.594	.330	.286
FAC3	CONSEQUENCES OF INADEQUATE PERFORMANCE	.886	.784	.002	.618	.064	-.105
FAC1	TIME SPENT PERFORMING	.886	.786	.001	.107	-.031	-.038
(CONSTANT)							1.039

MOS67U - CORRELATION OF MEANS

	FAC1	FAC2	FAC3	FAC4	FAC5
FAC1	1.000				
FAC2	.095	1.000			
FAC3	.328*	.602*	1.000		
FAC4	.364*	.532*	.918*	1.000	
FAC5	.107	.871*	.618*	.594*	1.000

* Significance less than or equal to .001

MOS67X - STEPWISE REGRESSION OF MEANS DEPENDENT VARIABLE.. FAC5 TYPE OF TRAINING

SUMMARY TABLE

VARIABLE		MULTIPLE R	R SQUARE	RSG CHANGE	SIMPLE R	B	BETA
FAC2	TASK LEARNING DIFFICULTY	.867	.751	.751	.867	.441	.736
FAC3	CONSEQUENCES OF INADEQUATE PERFORMANCE	.880	.774	.023	.665	.105	.153
FAC1	TIME SPENT PERFORMING	.882	.778	.004	-.020	-.054	-.065
FAC4	IMMEDIACY OF PERFORMANCE	.883	.779	.001	.600	.062	.065
(CONSTANT)						1.935	

MOS67X - PEARSON CORRELATION OF MEANS

	FAC1	FAC2	FAC3	FAC4	FAC5
FAC1	1.000				
FAC2	.027	1.000			
FAC3	.116	.630*	1.000		
FAC4	.111	.558*	.864*	1.000	
FAC5	-.020	.867*	.665*	.600*	1.000

* Significance less than or equal to .001

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MOS67Y - STEPWISE REGRESSION OF MEANS DEPENDENT VARIABLE.. FAC5 TYPE OF TRAINING

SUMMARY TABLE

VARIABLE		MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
FAC2	TASK LEARNING DIFFICULTY	.734	.539	.539	.734	.469	.569
FAC4	IMMEDIACY OF PERFORMANCE	.814	.662	.123	.611	.449	.371
FAC1	TIME SPENT PERFORMING	.818	.670	.008	-.007	-.079	-.088
FAC3	CONSEQUENCES OF INADEQUATE PERFORMANCE	.819	.670	.000	.632	.032	.040
(CONSTANT)						.316	

MOS67Y - PEARSON CORRELATION OF MEANS

	FAC1	FAC2	FAC3	FAC4	FAC5
FAC1	1.000				
FAC2	.008	1.000			
FAC3	.139*	.510*	1.000		
FAC4	.193*	.393*	.847*	1.000	
FAC5	-.007	.734*	.632*	.611*	1.000

* Significance less than or equal to .001

MOS68B - STEPWISE REGRESSION OF MEANS DEPENDENT VARIABLE.. FAC5 TYPE OF TRAINING

SUMMARY TABLE

VARIABLE		MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
FAC2	TASK LEARNING DIFFICULTY	.829	.687	.687	.829	.650	.676
FAC3	CONSEQUENCES OF INADEQUATE PERFORMANCE	.840	.706	.019	.691	.191	.165
FAC4	IMMEDIACY OF PERFORMANCE	.843	.710	.004	.481	.206	.076
FAC1	TIME SPENT PERFORMING	.843	.711	.001	-.002	.030	.024
(CONSTANT)						-.710	

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MOS68B - PEARSON CORRELATION OF MEANS

	FAC1	FAC2	FAC3	FAC4	FAC5
FAC1	1.000				
FAC2	-.031	1.000			
FAC3	-.012	.719*	1.000		
FAC4	-.039	.469*	.540*	1.000	
FAC5	-.002	.829*	.691*	.481*	1.000

* Significance less than or equal to .001

MOS68D - STEPWISE REGRESSION OF MEANS DEPENDENT VARIABLE.. FAC5 TYPE OF TRAINING

SUMMARY TABLE

VARIABLE		MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
FAC2	TASK LEARNING DIFFICULTY	.696	.484	.484	.696	.380	.511
FAC3	CONSEQUENCES OF INADEQUATE PERFORMANCE	.767	.589	.105	.619	.329	.426
FAC4	IMMEDIACY OF PERFORMANCE	.772	.597	.008	.257	-.165	-.108
FAC1	TIME SPENT PERFORMING	.773	.598	.001	.190	.023	.032
(CONSTANT)						1.711	

MOS68D - PEARSON CORRELATION OF MEANS

	FAC1	FAC2	FAC3	FAC4	FAC5
FAC1	1.000				
FAC2	.204*	1.000			
FAC3	.161	.482*	1.000		
FAC4	.139	.252*	.545*	1.000	
FAC5	.190	.696*	.619*	.257*	1.000

* Significance less than or equal to .001

MOS68F - STEPWISE REGRESSION OF MEANS DEPENDENT VARIABLE.. FAC5 TYPE OF TRAINING

SUMMARY TABLE

VARIABLE		MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
FAC2	TASK LEARNING DIFFICULTY	.857	.734	.734	.857	1.091	.782
FAC1	TIME SPENT PERFORMING	.865	.748	.014	.203	.225	.130
FAC3	CONSEQUENCES OF INADEQUATE PERFORMANCE	.867	.752	.004	.534	.201	.112
FAC4	IMMEDIACY OF PERFORMANCE	.870	.757	.006	-.013	-.320	-.088
(CONSTANT)						-.620	

MOS68F - PEARSON CORRELATION OF MEANS

	FAC1	FAC2	FAC3	FAC4	FAC5
FAC1	1.000				
FAC2	.098	1.000			
FAC3	.265*	.537*	1.000		
FAC4	.377*	-.020	.367*	1.000	
FAC5	.203	.857*	.534*	-.014	1.000

*Significance less than or equal to .001

MOS68G - STEPWISE REGRESSION OF MEANS DEPENDENT VARIABLE.. FAC5 TYPE OF TRAINING

SUMMARY TABLE

VARIABLE		MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
FAC2	TASK LEARNING DIFFICULTY	.812	.659	.659	.812	.498	.675
FAC3	CONSEQUENCES OF INADEQUATE PERFORMANCE	.820	.672	.013	.662	.329	.428
FAC4	IMMEDIACY OF PERFORMANCE	.841	.707	.036	.415	-.367	-.315
FAC1	TIME SPENT PERFORMING	.841	.708	.000	-.426	-.015	-.017
(CONSTANT)						2.269	

MOS68G - PEARSON CORRELATION OF MEANS

	FAC1	FAC2	FAC3	FAC4	FAC5
FAC1	1.000				
FAC2	-.458*	1.000			
FAC3	-.312*	.718*	1.000		
FAC4	-.106	.566*	.811*	1.000	
FAC5	-.426*	.812*	.662*	.415*	1.000

*Significance less than or equal to .001

MOS68H - STEPWISE REGRESSION OF MEANS DEPENDENT VARIABLE.. FAC5 TYPE OF TRAINING

SUMMARY TABLE

VARIABLE		MULTIPLE R	R SQUARE	RSQ CHANGE	SIMPLE R	B	BETA
FAC3	CONSEQUENCES OF INADEQUATE PERFORMANCE	.577	.333	.333	.577	.588	.429
FAC2	TASK LEARNING DIFFICULTY	.691	.477	.144	.559	.329	.404
FAC1	TIME SPENT PERFORMING	.692	.479	.002	.123	.033	.050
(CONSTANT)						.127	

MOS68H - PEARSON CORRELATION OF MEANS

	FAC1	FAC2	FAC3	FAC4	FAC5
FAC1	1.000				
FAC2	.075	1.000			
FAC3	.101	.353*	1.000		
FAC4	.003	.112	.457*	1.000	
FAC5	.123	.559*	.577*	.246*	1.000

*Significance less than or equal to .001

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